

XXXII.—Notes on the Identity of some of the Types of Mygalomorphæ in the Collection of the British Museum.  
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*Aganippe subtristis*, Cambr. Ann. & Mag. Nat. Hist. (4) xix. p. 28 (1877).—In the thickly scopulate distal segments of the legs of the first and second pairs, as well as in the absence of marginal rows of spines, the genus *Aganippe* falls into the Cyrtachenieæ, as Simon rightly surmised. The claws of the legs are armed with only a few teeth, of which one is very large. The three sternal impressions are distinct, the first marginal, the second removed from the margin a small distance, both being smallish; but the third or posterior pair are much larger, oval, and approaching the middle of the sternum, although further from each other than from its borders.

*Idiops Cambridgei*, Ausserer (Verh. z.-b. Ges. Wien, 1876, p. 145), from Bogota, belongs to the genus *Pseudidiops*, Sim. (= *Dendricon*, Cambr.). It may be synonymous with *P. opifex* of Simon, from Guiana and Venezuela, but it differs from *P. rastratus*, Cambr., from Bahia, in having the posterior median eyes subequal to the anterior median\*, and separated from each other by a space which equals twice their diameter, and from the posterior lateral by a space which about equals their diameter; whereas in *P. rastratus* the posterior median eyes are much smaller than the anterior median, closer to the posterior lateral, and separated from each other by a space equal to about three diameters.

*Bolostromus venustus*, id. (*op. cit.* p. 149), is congeneric with *Phænothele Gaujoni*, Sim., inasmuch as the claws of the posterior legs have two rows of denticles and the anterior line of eyes is straight.

*Eucteniza mexicana*, id. (*op. cit.* p. 149).—The genus *Eucteniza* seems to fall partly into the tribe Cyrtachenieæ and partly into that of Ctenizeæ. The tarsus of the palp is distinctly pyriform and lightly scopulate, with two external, two internal, and two apical spines. The tarsi and protarsi of the first and second pairs of legs are also lightly scopulate, and the tarsi are only armed towards the apex with two or

\* The anterior median eyes are those that form the middle row, and not those that are placed on the marginal tubercle, these being the anterior lateral.

three spines and the protarsi internally with two spines and externally with four, the tibiæ being almost unarmed. The claws of these legs are armed with one large tooth and one or two smaller ones. The sternum offers the usual small marginal impressions opposite the coxæ of the first and second legs, and, in addition, near the middle of its length a pair of large somewhat bean-shaped scars, which are close together but some distance from the lateral margin.

*Cteniza antipodum* and *C. hexops*, White (P. Z. S. 1849, p. 5), are synonymous, the latter being nothing but a younger specimen of the former. The species belongs to the genus *Macrothele*, and is, perhaps, identical with *M. Huttoni* of Cambridge, which is unknown to me. In an evil moment Ausserer proposed the genus *Hexops* for White's second species, trusting the author's statement respecting the number of the creature's eyes. The statement, however, is erroneous, the normal number of eyes being clearly visible. Of course Ausserer had no right to change the *specific* name into *Whitei* when choosing to take for his fancied new genus the specific name that White proposed; but unfortunately *Hexops* antedates *Macrothele*, and some authors will perhaps boldly say that, notwithstanding its inappropriateness, it must consequently supersede it.

*Trechona zebrata* (Walck.).—A specimen in the British Museum of this species, bearing Walckenaer's ticket, has the inferior claw on the feet strongly developed. It is thus not congeneric with the species described by Ausserer as *Trechona venosa* (Latr.); and since *zebrata* is the type of the genus *Trechona*, it is not characteristic of the latter to lack the lower claw, as Ausserer states. In fact the genus will probably prove synonymous with *Eudiplura*, Sim.

*Ischnothele caudata*, Auss. (*op. cit.* p. 163), from Yucatan, is nearly allied to *Mygale guianensis*, Walck. The two species are undoubtedly congeneric. Simon refers Walckenaer's species to *Thelechoris* of Karsch, which is based upon a Mascarene species, but whether rightly or not I cannot say. Upon *à priori* grounds I should be inclined to think wrongly; but if rightly, the genus must stand as *Ischnothele*.

*Thalerommata gracile*, id. (*op. cit.* p. 182), is, as Mons. Simon declares, very difficult to classify. The absence of the lower claw and the presence of long and thick unguis tufts of hairs on the feet refer it either to Simon's Barychelinae or

Aviculariinae. But the spinning-mammillæ appear to be constructed differently from the plan that is characteristic of either of these sections. The posterior mamillæ are short, the segments being thick and gradually decreasing in length from the first to the third; the first, moreover, is much thicker at its distal end, while the third, on the contrary, is pointed and conical; the anterior spinners are slender, cylindrical, about half the length of the basal segment of the posterior, and separated by a space which is equal to about twice their own thickness. There is no true rastellum on the mandible, although the setæ above the fang seem stout at the base and the scopulæ of the feet are very scanty, yet apparently entire. The maxillæ are basally spinulose, and there are a few (two or three) apical spinules on the labium. I think it is probable that the genus will prove to be related to some of the American species of Leptopelmateæ.

*Idiommata Blackwallii*, Cambr. (Proc. Zool. Soc. 1870, p. 154).—The type of this species (a male) has Wood-Mason's stridulating-organ well developed. The female is unknown to me, and so also are the males of the other Australian species that have been referred to *Idiommata*. But the females of what I believe to be *reticulatum* of L. Koch, as well as of other species, show no trace of this organ. It is possible, therefore, that it may be present only in the males of this genus. This, however, does not seem probable; so that the safer course is to regard the two sets of species—*i. e.* that typified by *Blackwallii* and that by *reticulatum*—as generically distinct. The latter in that case will probably have to take the name *Encyocrypta*.

*Ischnocolus obscurus*, Auss. (*op. cit.* p. 171), from Bogota, appears to be congeneric with the species previously named by the author *Hapalopus formosus*, of which the Museum has a single female specimen from the locality just mentioned.

*Ischnocolus sericeus*, id. (*op. cit.* p. 119), from Yucatan, is based upon a young specimen of undetermined genus.

*Ischnocolus hirsutus*, id. (*op. cit.* p. 170), is based upon a young specimen belonging probably to some species of *Lasiodora*.

*Ischnocolus parvus*, Keys., is apparently the young of a species of *Eurypelma*.

*Ischnocolus gracilis*, Keys. ('Spinnen Amerikas,' iii. p. 11),

from Rio, is an immature rubbed specimen belonging to an indeterminable genus.

*Ischnocolus rubropilosus*, Keys. (*op. cit.* p. 12), from Neu Freiburg, is based on the young of one of the Homæommateæ.

*Ischnocolus janeirus*, id. (*op. cit.* p. 13), belongs apparently to the genus *Magulla*, Simon.

*Hapalopus villosus* (adult ♂), *Ischnocolus pilosus* (very young ♀), *Ischnocolus nigrescens* (half-grown ♀), *Crypsidromus perfidus* (adult ♀), *Crypsidromus funestus* (adult ♀) (Keys. *op. cit.* pp. 7–15), are all based upon different sexes and ages of the same species, and this bears a suspicious likeness to *Mygale fusca* of Perty. Amongst species known to me it is most nearly allied to *Homœomma versicolor*, Koch. At all events, it is not an *Ischnocolus* nor a *Hapalopus*, nor probably a *Crypsidromus*. I am not, however, acquainted with the type species of the latter genus, but some of the other species that Ausserer referred to it, e. g. *Crypsidromus macropus*, are undoubtedly not congeneric with *villosus*.

*Cyrtosternum cursor*, Auss. (*op. cit.* p. 176).—The chief character of the genus *Cyrtosternum*, of which the name, on the grounds of its preoccupation, has been altered by Simon into *Cyrtopholis*, is the strong convexity of the sternum. There appear to me to be no reasons for supposing that the species from which Simon drew up his diagnosis of *Cyrtopholis* ('Hist. Nat. Araignées,' i. p. 143) is congeneric with *C. cursor*.

*Crypsidromus pernix* and *C. macropus*, id. (*op. cit.* pp. 178, 179), from Mexico, are not congeneric, since the former has the two tibial spurs of the male well developed and of normal form, and the latter is without them. Which of the two, if, indeed, either, will prove to be a *Crypsidromus* in reality, *i. e.* congeneric with the type *C. isabellinus*, I cannot say, since I am not acquainted with the last-named species, and no one, so far as I am aware, has described the male. Simon's *Crypsidromus* is of the *macropus* type.

*Callyntropus convexus* (C. Koch).—The specimen in Keyserling's collection identified by Ausserer as *convexus* of C. Koch, upon which Ausserer based his genus *Callyntropus*, appears to me to be the young of a *Lasiadora* or of some genus of Theraphosææ. The British Museum has other examples from British Guiana which fall into *Callyntropus*,

but they are evidently immature specimens of some larger species.

*Eurypelma Jheringi*, Keyserling (*op. cit.* p. 19), from Taquara, belongs to the Homæommateæ, and not to *Eurypelma*. It appears to be ascribable to *Homæomma* as characterized by Simon ('Hist. Nat. Araignées,' i. p. 162), which, however, is not, I believe, the true *Homæomma* of Ausserer and Cambridge. In the latter the palpal bulb bears at its base a tuberculiform tooth and the apex is not "*simpliciter tenuissimus*," as Simon says, but stout and strongly curved. Moreover, in the specimens that I have examined in the Museum there is no apical scopula on the fourth protarsi. They appear, in fact, to be referable to *Agathostola*, Simon, which will prove, I think, to be a synonym of *Homæomma*.

*Lasiadora immanis*, Ausserer (*op. cit.* p. 195), as the diagnosis clearly proves, belongs to Simon's later genus *Xenesthis*.

*Phlogius cervinus*, Thorell ('The Spiders of Burma,' London, 1895, p. 5), is based upon two specimens (a male and a female), which are, however, specifically distinct. The male, which may be taken as the type, belongs to the genus *Musagetes*, Poc.; the female also belongs to the same genus, and is specifically identical with the species I have named *Musagetes bicolor* (Ann. & Mag. Nat. Hist. (6) xv. pp. 172, 174).

*Phlogius fuliginus*, id. (*op. cit.* p. 8), is correctly referred to its genus. It seems to me, however, that the genus *Phlogius*, Sim., must be regarded as synonymous with the older genus *Selenocosmia* of Ausserer, the distinction between the two, based upon the presence or absence of a divisional line of setæ on the tarsal pads of the fourth leg, being, I believe, not of generic value\*.

*Phlogius sericeus*, id. (*op. cit.* p. 10), from Rangoon, belongs to the genus *Chilobrachys* of Karsch, the claws of the legs being minutely dentate and the inferior claw often visible. The young specimens illustrate very forcibly the law of the growth of the tarsal scopulæ that I have enunciated above.

\* In the synopsis of the genera of Selenocosmiidæ in Ann. & Mag. Nat. Hist. (6) xv. p. 170, I stated that the protarsal pads of the third leg in *Phlogius* and *Selenocosmia* cover only half the segment. This is not strictly accurate, since the scopula in question extends over about two thirds or even more of the protarsus.

One example, with the carapace only 4 millim. long, has the pads on the palpi, as well as on the legs, divided by a band of setæ. In fact, on the fourth tarsi nearly the entire sole of the foot is covered with setæ, which at the sides are merely intermixed with scopular hairs. In the adult the fourth tarsal pad is very visibly divided, and in the female with the young the pad of the third tarsus is similarly, though less distinctly, traversed by a row of setæ.

*Phlogius oculatus*, Thorell (*op. cit.* p. 13), from Akyab, also belongs to the genus *Chilobrachys*. The tarsi of the third leg, as well as of the fourth, is divided by a band of setæ.

From the above data it is evident that most of the so-called South-American species of *Ischnocolus* must drop out of the Neotropical fauna, and it is in the highest degree probable that the rest will follow in their train when the types have been re-examined. To what extent the species from the tropical parts of the Old World that have been ascribed to *Ischnocolus* will have to be similarly dealt with I am not in a position to say.

The explanation of the strange errors referred to above in connexion with the identification of some of the smaller genera of Neotropical Aviculariidae is not far to seek. The genera have been largely established upon the entirety or divisions of the tarsal pads or *scopulae*—a character which was regarded by Ausserer and later on by Mons. Simon as being of the first importance. But if the young stages of a species in which, when adult, the pads are complete, that is, show no median divisional line of normal hairs, be examined, it will be found that at first the tarsi are clothed with setæ, and these later on become intermixed with scopular hairs. As the animal increases in size the scopular hairs increase in number, gradually spreading over the tarsus, and apparently replacing the normal setæ. But the replacement does not take place at a uniform rate all over the foot; on the contrary, the pad, beginning at the sides, encroaches by degrees inwards, and, as a consequence, the last part to remain unoccupied is the middle line of the sole, which thus retains longest its primitive clothing of setæ.

In the second place, it will further be noticed that the tarsal pads of the four legs do not reach their full development contemporaneously, the order of their appearance corresponding with the order of the legs from before backwards—the first tarsus being covered before the second, the second before the third, and the third before the fourth, so that when the pads



on the first or second legs are complete, those on the fourth or even the third may still retain their divisional line.

This generalization with regard to the growth of the pads will perhaps be found to admit of some exceptions in detail; but, on the whole, I believe it will prove to represent the facts of the case with tolerable accuracy. Hence it is worthy of remembrance in connexion with the determination of the genera and species of the group. For instance, Mons. Simon primarily divides his vast family Aviculariinae as follows:—

- A. Scopulæ at least of the posterior tarsi divided.
- a. Scopulæ of all the tarsi divided . . . . . *Ischnocoleæ*.
- b. Scopulæ only of the posterior tarsi divided.
- a. Scopulæ of third and fourth tarsi divided . . . . . *Chætopelmateæ*.
- b. Scopulæ of the fourth tarsi divided . . . . . *Crypsidromeæ* (and *Phlogiæ*\*).
- B. Scopulæ of all the tarsi undivided . . . . . *Aviculariæ*, *Theraphoseæ*, *Eurypelmateæ*, *Homœommateæ* (*Selenocosmiææ*, *Pacilotheriææ* †).

But in accordance with what has been said regarding the growth of the scopulæ, it follows that a species of section B will in its early days fall into the *Ischnocoleæ*, a little later into the *Chætopelmateæ*, then into the *Crypsidromeæ*. And, similarly, a species belonging to the *Crypsidromeæ* will have to pass through sections a and a before reaching its destination in b.

Hence it follows that the division of the scopulæ *may be* nothing but a sign of immaturity. I am particular to emphasize the verb in this sentence because I do not wish to be misunderstood to say that the character belongs necessarily to undeveloped forms. This is certainly not the case, since many adults are found with some or all of their tarsal pads divided. But I consider that one cannot too strongly insist upon the necessity for caution in the use of this character on the part of authors who are systematically studying the Mygalomorphæ, seeing that both Ausserer and Keyserling, who are looked upon as high authorities in arachnology, have established a large number of spurious species, perhaps even genera, upon this very character, when occurring in specimens

\* The *Phlogiææ* need not here be taken into consideration, since I have already endeavoured to show that they form part of a group to which I gave the family name *Selenocosmiidæ*, and have no particular relationship with the *Crypsidromeæ* (*Ann. & Mag. Nat. Hist.* (6) xv. pp. 165-169).

† Already discussed, *ibid.*

which no person, one would have thought, could mistake for anything but immature. No doubt this is partly to be explained by the unfortunate circumstance that in the case of the females of this group of spiders—this being the sex which most frequently comes to hand—it is very hard to tell the adults from the immature. Consequently the generic status of every species, referred to sections *a*, *a*, or *b* of the above table, that rests solely upon a female specimen, must be regarded as of questionable validity, unless the maturity of the type specimen is beyond dispute. With the males the case is different. As a rule generic characters in this sex are pretty obvious; and it may safely be stated that, until we know the males of the different species of Neotropical Theraphosidæ, the classification of this family will remain more or less chaotic.

So far, however, as I can judge from the material at my disposal, the Homæommateæ, Eurypelmateæ, Theraphoseæ, Aviculariæ, Crypsidromeæ, Chætopelmateæ, and Ischnocoleæ form a compact and natural assemblage which may be called Theraphosidæ *sensu stricto*. But touching the Ischnocoleæ, I must speak with some caution, since the genus *Ischnocolus*, from the Mediterranean, is unknown to me.

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XXXIII.—*On a new Sound-producing Organ in a Spider.*

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IN January of the current year I published in 'Natural Science' a brief summary of the present state of our knowledge of the structure, position, mechanism, and function of the various kinds of stridulating-organs that occur in spiders, and I suggested that the available evidence seems to point to the conclusion that these organs have been evolved within the group in response to two needs, which, although totally different in their nature, are, in their way, alike of vital importance to the welfare of the species. In one set of species the sound is attractive and in the other repellent, the sense of attraction lying between members of opposite sexes of the same species and that of repulsion being experienced by enemies that might otherwise with intent or by accident destroy the spider if not warned of its presence and formidable nature. In connexion with the stridulating-organs that belong to the first category and are of sexual significance, it was pointed out that they are either absent or imperfectly developed in the females, and are perfected only in the males; whereas